DRAFT THE ENVIRONMENTAL WATER ACCOUNT
CONCLUSIONS TO DATE AND AN IMPLEMENTATION PLAN
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This paper sets forth conclusions to date regarding creation of an Environmental Water Account. Important issues are identified. An approach for implementing the Environmental Water Account in year 2000 is described.

I. CONCLUSIONS

A. General

- *Useful Environmental Water Account assets include surface storage capacity, groundwater storage, capacity in pumping plants and canals, funds that can be used to purchase water, including options for future purchase and efficiency or reuse measures by water users, and funds that can be used to purchase other environmental benefits.*

- *"South Delta improvements," consisting of increased permitted pumping capacity at the Banks Pumping Plant, and joint use of Banks and Tracy Pumping Plants would be key features of the Environmental Water Account.*

- *Screened intakes remote from and directly connected to Delta pumping plants are especially useful.*

- *In the early stages of the Environmental Water Account, funds to purchase water are essential.*

- *Numerous innovative options for maximum use of Environmental Water Account assets have yet to be fully evaluated.*

- *It is unlikely that enough Environmental Water Account assets will be available in Stage I provide the Delta fishery protections desired by environmental interests and fishery agencies and the water supply desired by agricultural and urban users of water exported from the Delta.*

- *Considerable disagreement exists concerning the science on which existing and future environmental protections in the Delta and operation of the Environmental Water Account are based. However, these differences have been clearly described, and some of them could be analyzed within the next several months.*

B. Specific

8. The Environmental Water Account would provide significant fishery improvements.

Using model simulations we demonstrated that using EWA assets or capabilities to severely reduce exports at key times significantly reduced salvage of all races of chinook salmon from the Sacramento River and the San Joaquin River systems, as well as delta smelt, splittail, and steelhead.. In addition, actions involving increased flows in rivers and through the Delta would likely further benefit fish. The most significant benefits were to delta smelt and San Joaquin fall-run chinook salmon.

9. The EWA would be more effective on an AF per AF basis than prescriptive standards approach in reducing fish salvage.

The EWA provided for actions at time when prescriptive standards would not have been activated, and thus reduced total salvage in model simulations over that of prescriptive standards. While overall salvage may have been lower under prescriptive standards for some species, salvage reductions per acre-foot of export reductions was substantially lower under the EWA approach than the prescriptive approach.

10. Surface water storage south of the Delta was most useful asset of the EWA.

South of Delta storage either a collateral or debt was most useful for reducing exports when fish salvage risks were high. North of Delta storage was not always available to repay debt in San Luis Reservoir before the summer low-point. Ground water resources south of Delta were likewise not sufficiently "liquid " to repay debts before the summer low-point. In-Delta storage if connected directly to project pumping plants is of similar value as south of Delta storage.

11. There were synergies between Delta and Upstream actions such that water costs between the two were less than the sum of the two.

Often upstream actions provided additional benefits in the Delta in the form of extra Delta inflow that could be captured as EWA storage in In-Delta storage or South of Delta storage for later use or for immediate repayment of debt.

II. PROBLEMS/ISSUES/CONSTRAINTS

1. EWA actions generally resulted in water supply goals being short by several hundred thousand acre-ft in critical years and lessor amounts on average in other years.

Export constraints from implementing EWA actions limited exports allowed under various baseline scenarios such that target deliveries for water supply were shorted as much as 300-400 TAF per

year in critical periods and 100-200 TAF per year average over 73-year simulation.

2. Shifts in export patterns to reduce fish salvage would have mixed effects on urban water quality.

Reductions in February and March exports would result in lower dissolved organic carbon in urban water supplies. Higher summer and fall exports could increase salt concentrations of export water.

3. EWA constraints on exports at times took on such rapid and substantial debts in San Luis Reservoir (up to several hundred TAF per month) that the ability to repay debt was in doubt and the summer low-point in San Luis was put at risk as was the next year's water supply.

EWA directed export reductions particularly after the VAMP period in wet years resulted in substantial debt being carried into the summer. The debt was particularly substantial in the cases where it was derived from limiting the expanded Banks capabilities. In some simulations the combined export capacity reached 21,000 cfs (including In-Delta storage), which if constrained by taking on EWA debt in San Luis resulted in rapid and substantial debt. Adding VAMP to EWA's responsibility futher burdened the EWA.

4. Higher demands-deliveries and resultant higher exports than historical levels used in the DWRSIM simulations caused a significant additional burden on the EWA.

The EWA was forced to reduce exports that were greater than historical levels, which burdened assets of the account and reduced the potential effectiveness of assets in the account to provide protections to fish. Higher demands also reduce the ability of the EWA to gain assets, essentially competing with demands for available water supply.

5. Uncertainties relative to the benefits and impacts of EWA actions.

For any given amount of Environmental Water Account assets, the desired Delta fishery protection requirements and the desired export water supply cannot both be provided.

6. Potential impacts of EWA on water transfers market.

EWA in combination with CVPIA and ERP activities in the water transfers market would disrupt the market to the detriment of all who depend upon that market.

III. STEPS IN IMPLEMENTATION

A. Resolving Issues

1. Lack of Water Supply Benefits - EWA along with various CVPIA (AFRP, b(2), b(3), and Trinity) and ERP actions constrain water supply benefits - various assets could be added to the CALFED mix to provide additional water supply:
   a. In-Delta Storage - Webb and Bacon complexes could add several hundred TAF of water supply assets.
   b. Relaxation of existing standards could add additional supply.
   c. A portion of the expanded Banks capacity and relaxing restrictions on such use.

d. Additional north and south of Delta surface and ground water storage.
e. Additional water transfer capabilities.
f. Making In-Delta AFRP requirements the responsibility of the EWA rather than water contractors.

2. Water Quality Effects - responsibility for any water quality effects caused by EWA actions should be resolved. Specifically, shifts in export timing that result in a decline in average or specific delivered water quality should be mitigated.
3. EWA Debt in San Luis - there are several measures to limit EWA debt in San Luis.
   a. EWA should not be burdened with debt of restrictions on use of expanded Banks.
   b. Increasing groundwater assets south of Delta and the potential rate of extraction of ground water assets.
   c. Ability to shift demands from before summer low-point to after low-point. Options include transfers, borrowing MWD storage, paying farmers to pump groundwater rather than demand surface water, etc.
   d. Providing EWA a share in expanded Banks capacity to be used at the discretion of EWA to repay debt in San Luis or further reduce exports.
4. Water Supply Demands - an appropriate level of water supply demands must be set before determination of the size and assets of the EWA are established. If demands are set to increase during Stage 1, then the size of the EWA and its assets should increase as well.
5. Additional Simulations and Analyses - Conducting additional simulations will help resolve uncertainties as to EWA function and effectiveness.
6. Analysis of Technical Issues - Conducting additional analyses of technical issues will further help to resolve issues relating to priorities of EWA asset use and uncertainties relative to effectiveness of actions toward helping toward recovery of ESA species.

B. Developing EWA Assets

1. Share in Expanded Banks - to be effective the EWA should receive a share in the water supply generated from expansion of the pumping capacity of the SWP Banks Pumping Plant.
2. Access to Project Facilities - to be effective the EWA should have access to project facilities to move and store water when necessary. At a minimum the EWA should be allowed access and use of surplus capacity.
3. Ability to Adjust Upstream Project Operations - to be effective and efficient the EWA should have upstream assets and capabilities including ability to retain EWA water in upstream storage, borrow water in upstream storage, and release water from upstream storage to effect changes in the Delta.
4. Ability to assume (take-on) debt - to be effective the EWA needs an ability to borrow water or take on debt in San Luis and upstream project reservoirs. The amount of credit could be tied to the extent of EWA assets (e.g., water held in groundwater) as well as existing or future forecasted system conditions (e.g., water storage, inflows, snow pack, etc.)
5. Real Assets - to be effective the EWA needs real assets. The EWA storage, pumping, and conveyance assets must be secured and agreements must be developed with the owners of those assets concerning payment for and operation of the assets. Agreements or contracts must be executed for water transfers (including options), efficiency, and reuse assets of the Environmental Water Account For example: water assets could be in the form of contracts with the projects. Other assets would include guaranteed funding through appropriation, user fees, etc. Other guarantees may

include contracts or rules for access to and use of project facilities. Guarantees may also include water rights or exemptions from water quality standards for specific actions.

C. Operational Capabilities, Governance, and Rules

1. EWA Entity -
   a. The EWA contracting entity must be identified.
   b. Its relationship to the governance structure must be spelled out.
   c. The structure for governing the EWA must be developed.
   d. If existing agencies are going to govern, agreements must be negotiated between these agencies. If the contracting entity differs from the governance structure, an agreement must be negotiated between the governance structure and contracting entity.
2. Decision Making - The decision-making process for the EWA must be developed, including the rules governing operation of the EWA and the roles of various stakeholders, the water project operators, and the CalFed Ops Group.
   a. The relationship between the Environmental Water Account and state and federal water project operation must be determined.
   b. If there is to be an Environmental Water Account manager, this person's job description must be developed, this individual must be selected, and arrangements must be made for his or her employment.
   c. If the EWA uses both state and federal facilities, DWR and BuRec must develop an agreement on the sharing of those facilities and EWA water supply effects.
3. Additional Infrastructure - Agreements must be developed and permits must be obtained for South Delta improvements.
4. In-Delta Storage - If the Delta Wetlands project is to be part of EWA, drinking water issues concerning that project must be resolved.
5. Regulatory Constraints on EWA - The degree to which operation of the EWA satisfies existing and future regulatory requirements must be determined.
6. Water Transfer Market - The effect of EWA (and ERP and CVPIA) water transfer actions on other water transfers must be evaluated and, if this evaluation shows that problems will occur, those problems must be resolved.
7. Coordination of EWA with CVPIA and ERP - The Environmental Water Account must be coordinated with the ERP. If attempts to develop this coordination reveal problems, these problems must be resolved.
8. Stakeholder Buy-In - A negotiating structure is needed to ensure that key agency and stakeholder representatives buy in to the EWA. This negotiating structure could oversee the resolution of issues listed above and integrate the results into a coordinated EWA.

IV. Negotiation Issues

- Define default operating requirements. Define the flow, water quality, diversion, and storage rules that will govern operations in the absence of action by the EWA. Existing defaults include the X2, E/I ratio, and Shasta carryover requirements. Default rules could change in the future. For example, COE requirements currently limit Banks pumping to about 6.6 kcfs

during most circumstances. However, as part of the CALFED Program, the limits on Banks pumping might be relaxed. Such a relaxation would create a new default.

- Define new Stage 1 assets and divide them between the EWA and the water users. Assets are physical, institutional, and financial mechanisms for modifying water operations. Possible assets include: (1) rights to a share of allowable diversions; (2) rights to a share of conveyance capacity; (3) rights to a share of storage capacity; (4) the right to grant variances to default operating requirements; (5) contracts for water deliveries or purchases. Implicit is the notion that usable assets must be backed by adequate financial resources. As an example, the right to increased Banks pumping might simply increase SWP assets, or the right (the asset) could be shared with the EWA. Coupled to JPOD, the increase in Banks pumping might also represent a new asset for the CVP. A key issue will be the relationship between b(2) water and the EWA. Can b(2) water be operated within or in coordination with the EWA?
- Define the relationship between the EWA and the state and federal projects. A large percentage of EWA actions will affect or utilize state and federal facilities. The relationship between EWA and the Projects should, therefore, be spelled out in detail. What rights does the EWA have to use surplus capacity. What priority do EWA operations have compared to water transfers or the delivery of unscheduled water? How will the costs of EWA operations be calculated? How much debt will EWA be allowed to take on at various location? How much debt will the EWA be allowed to carryover into succeeding water years? What are the repercussions if the EWA cannot repay a debt in a timely manner?
- Decision making and the Relationship to ESA and CVPIA agencies. The EWA Mission. The governance of the EWA will be heavily determined by the EWA's role within the broader CALFED solution. Is the primary goal of the EWA to enhance general ecosystem conditions and processes? Or is the primary goal to protect and enhance endangered species? Will the EWA be required to find replacement water for some or all ESA actions? Or will the EWA be part of a "no surprises" regulatory assurance and be used as a substitute for separate EWA actions. Will the EWA have upstream responsibilities or be confined to the Delta?
- Financing. The EWA must have a reliable revenue stream. How will that revenue be provided? Who will provide the revenue?

EWA Functions

EWA must be able to:

- Make rapid decisions
- Be able to gain near instantaneous E/I variances.
- Gain near instantaneous access to surplus capacity in state and federal facilities.
- Analyze near real-time monitoring data on species distributions.

- Generate and expend water, and carry secured debt.
- Write contracts for water purchases and storage leasing.
- Pay for EWA activities.
- Be responsive to ESA needs.
- Be accountable to the stakeholders and the public.
- Begin planning during 1999.

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